Summary of Responses to Work Sheet #1 for eBusiness Standards

SIMA Workshop on eBusiness Standards Reuse, Convergence, and Deployment
Last update: 2003-05-28

This work sheet is for collecting input from the industry initiatives participating in the SIMA Workshop on eBusiness Standards Reuse, Convergence and Deployment, May 29-30, 2003 at NIST in Gaithersburg, Maryland. The designated representative of each industry initiative should provide their input by May 14, 2003. We will summarize the inputs and distribute a draft summary to the registered participants of the workshop by May 23, 2003.

Objectives of the workshops:

Provide a forum for advancing collaboration among horizontal and vertical eBusiness initiatives and achieving cross-industry interoperability and/or convergence
Consolidate insights from previous efforts at developing, synchronizing and deploying of eBusiness standards

Define specific ways to improve the development, synchronization and deployment of needed eBusiness standards and infrastructure
Define priorities for encouraging convergence or achieving interoperability of cross-industry eBusiness standards
Define concrete steps that organizations should take to achieve these goals
Define what industry needs NIST to develop or provide to aid in achieving these improvements

Scope of the eBusiness standards workshops: Improving the delivery and use of standards for automating business to business transactions for design, procurement, fabrication, delivery, operation and maintenance of products and services.

Part 1. State of the Industry Practices and Infrastructure
1)
Please provide the following information:
Name of Industry Initiative
Industry Initiative Representative (Last Name, First Name)
E-mail Address

	Org	Response
Q1	**AIA**	AIA Aerospace, Matthew Williams, matthew@aia-aerospace.org
Q1	**ASHRAE**	ASHRAE GPC20, Wayne A. Dunn, waynedunn@aol.com, Charles S Barnaby, cbarnaby@wrightsoft.com, Bob Old, bob.old@siemens.com, Burns, Martin, burnsmarty@aol.com
Q1	**AIAG**	Automotive Industry Action Group, Pat Snack, psnack@aiag.org
Q1	**CIDX**	Chemical Industry Data Exchange (CIDX) Hutcheson, Ken khutches@csc.com

Q1	**NSRP**	NSRP Shipbuilding, Ron Wood, ronaldw@northropgrumman.com
Q1	**Ford/BIC**	Thomasma, Tim tthomasm@ford.com, Inventory Visibility & Interoperability (Onica, Terry) Open Application Group / Collaborative Product Development (Rowell, Mike) Covisint Messaging Consortium (Leidl, Jeff)
Q1	**RAPID**	RAPID, Inc. (Agricultural Inputs) Jim Wilson jim.wilson@kcx.com
Q1	**RN**	RosettaNet- Electronics -suresh.damodaran@rosettanet.org
Q1	**STAR**	STAR (Standards Technology for Automotive Retail) Dick Malaise rmalaise@nada.org
Q1	**UBL**	UBL is a horizontal emerging standard currently under OASIS. Although not focused on one industry, the team has established liaisons with many industries including high technology, retail, insurance, health care, eGovernment and others. Universal Business Language (UBL) Jon Bosak, TC Chair Monica J. Martin, NIST Interoperability Session Representative jon.bosak@sun.com; monica.martin@sun.com

2. **a)** Which of the currently available eBusiness standards is your industry using? **b)** Which stakeholders and supply chains tiers are using these today?

Summary: X12 crossed the most standard bodies. (AIA, CIDX, and AIG). Automotive industry is using OAGI BOD. CIDX uses RNIF. The question does not indicate if the standard is currently in use or planned for new versions. There might be additional standards such as BPSS that are planned for future versions.

Response

Q2	**AIA**	a) X12, EDIFACT, ATA Spec 2000, OAGIS, xCBL, STEP, EIA-836. b)? Customers (government, airline), primes, 1st tier and some 2nd tier suppliers.
Q2	**AIAG**	X12, EDIFACT, XML, ebXML, web services, STEP, OAGIS BODs, bar coded labels
Q2	**ASHRAE**	?
Q2	**CIDX**	ASC X12 EDI standards W3C XML standards Chem eStandards RosettaNet Implementation Framework v1.1
Q2	**NSRP**	a. IGES, STEP, dxf, SVG, UML Starting to use OASIS/XML/UDDI services, W3/SOAP/XSL, UBL b. Large Shipbuilders,
Q2	**Ford/BIC**	OAGIS, SOAP, XSD, X12, EDIFACT, AS2, additional: STEP, E5, OFTP, FTP, S/MIME, HTTP, HTTPS, SMTP, ebXML
Q2	**RAPID**	W3C XML Schema - manufacturer, distributor, retailer Global Trade Item Number (GTIN) - manufacturer, distributor, retailer Ag eStandards- manufacturer, distributor, retailer ebXML Message Service Specification v1.0- manufacturer, distributor, retailer Various X12 EDI Standards- manufacturer, distributor, retailer
Q2	**RN**	a)RosettaNet PIPs, EDI, ISO Code lists b)OEMs and first tiers
Q2	**STAR**	OAGI BOD Methodology (schema only); ebMSRetail auto industry – manufacturers and franchised dealers
Q2	**UBL**	The UBL team has established liaisons and actively sought inputs and support from retail, health care, financial services,

3. **a)** Does your industry have a roadmap for eBusiness standards development and deployment? **b)** If yes, are you willing to provide the roadmap for review and discussion by the workshop participants?

Summary: Roughly 50% in development. Some of this information is available for download, and not included here in the responses. We will review information from the websites. Given that the majority of the roadmap efforts are in development, this is an area where collaboration among industry sectors could provide timely results and convergence.

Response

Q3	**AIA**	a)In development b)
Q3	**AIAG**	a)No, but we are working on it b)Premature to share at this time.
Q3	**ASHRAE**	We are beginning the planning of a roadmap for eBusiness exchange as well as other life cycle data exchanges including Engineering, Procurement, Construction, Operate, and Maintain/
Q3	**CIDX**	CIDX is collaborating with RAPID and PIDX on a roadmap. We don't have one available to present.
Q3	**NSRP**	a)Some developed through the NSRP Projects: ISE and SPARS b)Some of it because it is new
Q3	**Ford/BIC**	a) Under discussion, not ratified and published. b) Yes.
Q3	**RAPID**	RAPID is collaborating with CIDX on a joint roadmap.
Q3	**RN**	a)Yes b)Broad overview
Q3	**STAR**	Yes – developed 64 BOD specs in 2002 and members will deploy in 2003 – 2005Can provide an industry-level roadmap, not individual members' plans
Q3	**UBL**	Within OASIS, there is not an eBusiness standards development and deployment roadmap, although that body has a Technical Advisory Board. In addition, for ebXML, there is the joint coordination committee (JCC) and joint committee (ebXML technical leads within OASIS) that assist in coordination efforts and issue resolution. However, UBL could be used in and is being considered for other vertical industries. In that case, the particular roadmap for that vertical industry may apply.

4. Which business processes and transactions have already been automated with effective eBusiness standards?

Summary: Order and purchasing seem to be common. These responses are at a very high level. Some appear to gloss over important issues, e.g., engineering change orders. We could discuss additional aspects, e.g., how much effort was spent in defining common processes; how much did they cost to implement; what are the barriers and cost to add an additional trading partner?

		Response
Q4	**AIA**	Sixteen X12 EDI transactions (procurement through settlement) have been harmonized.
Q4	**AIAG**	Material replenishment, financial, purchasing, engineering.
Q4	**ASHRAE**	Not yet.
Q4	**CIDX**	EDI implementation is very mature over the full range of transactions. Chem eStandards (XML DTD based) covers 52 transactions and related business process scenarios. Of these about 10 have been implemented by a significant number of chemical companies (e.g. order create/change/response, ship notice, invoice, payment).
Q4	**NSRP**	Exchange of CAD/CAM/CAE product model data and some supply chain exchange prototyping
Q4	**Ford/BIC**	Lots of X12 and EDIFACT EDI Lots of individual XML projects: Outbound logistics, inventory visibility, collaborative capacity planning
Q4	**RAPID**	Order Process Inventory Reporting Sales Reporting Invoicing Ship Notices
Q4	**RN**	Manufacturing Supply Chain (order & inventory management, payment, logistics, forecasting, manufacturing, design, customer support)
Q4	**STAR**	Vehicle and parts ordering and management; vehicle purchase; vehicle service

Q4	**UBL**	See UBL release document at http://oasis-open.org/committees/ubl/lcsc/0p70/. Currently defined drafts for: Order, Order Response (simple), Order Response (complex), Order Cancellation, Despatch Advice, Receipt Advice, and Invoice.

5. **a)** Which business processes and transactions are considered the next prime targets for exploiting eBusiness potential? **b)** Was an analysis and re-engineering of work processes used for defining these priorities? **c)** If yes, are you willing to provide a copy for review and discussion by the workshop participants?

Summary: Seems specific to industry. It might be useful to compare what is planned with what has already been implemented. Several participants indicate logistics as their next target, and this has already been implemented by other participants.

		Response
Q5	**AIA**	a)E-Collaboration (real time sharing/markup of unstructured data). b)No re-engineering but simply a prioritization from senior executives.
Q5	**AIAG**	a)Healthcare, quality, warranty, more engineering activity, End of Life Vehicle, TREAD, other related occupational health and safety reporting. b)No – perhaps by individual companies. Projects are initiated by company volunteers who want to influence the industry or solve a particular problem. When a project is initiated, the workgroup members create a business process model which may or may re-engineer the process, depending on your company's viewpoint c)AIAG starting to use UN/CEFACT's UMM and a standard rapid process development methodology.
Q5	**ASHRAE**	Engineering, procurement,& operation for HVAC equipment and systems.
Q5	**CIDX**	a) The logistics and demand forecasting areas appear to be the next prime targets. b) No C) N/A
Q5	**NSRP**	a)Discipline specific exchanges/sharing, expanded Supply chain scenarios b)Yes c)Some of is releasable but most project in process data
Q5	**Ford/BIC**	Purchasing, MIN/MAX inventory replenishment, APQP (Quality registration). - a) warranty registration and processing b) No. Analysis and re-engineering of work processes is done after priorities are defined. Priorities are set based on existence of generally recognized problem with current business practices, or by legislation. Most importantly, they are set according to which projects receive funding. Quality analysis and re-engineering work among participants in a trading community requires allocation of funds and full-time participants by the participating trading parties.
Q5	**RAPID**	a) Logistics Further refinement of order-to-cash transactions b) no c) n/a
Q5	**RN**	a)Information intensive and long running multiparty supply chain business processes b)yes c)Yes, can provide a RosettaNet PIP (e.g., PIP3A4, available from Web)
Q5	**STAR**	Parts inventory management, CRM, vehicle service schedulingFocus is on developing common information requirements, not developing a common end-to-end business process as we do not want to impact competitive aspects of existing/new business processes.

Q5	**UBL**	The 0.70 release and comments are being resolved as quickly as possible within UBL team under OASIS, as well a mapping of UBL to RosettaNet will serve as an additional input, as the next prime target. UBL is also in discussion with UN/CEFACT to consider migration of UBL into the Advanced Technologies Group (ATG) within that organization. Liaisons, participants and other inputs to the team have identified other potential scenarios to address in the future. These are found at the end of this response. The release is available as specified in the previous question on the OASIS site. Future possible scenarios: For separate development, include situations of: · Vendor managed inventory · Self-billing · Master Order and Call-offs · Prior Quote Request & Quotation · International Trade requiring Multi-party Transportation · Hire Trade (e.g. tool hire, scaffolding hire) · etc. Other scenarios that are already in development and that should be included in the catalogue of business scenarios include: · EAN International FMCG (Fast Moving Consumer Goods)

6. **a)** Please list the eBusiness standards currently used in your supply chains. **b)** Identify the business processes each standard accommodates and rate how effective each standard has been in meeting the business requirements. **c)** How many software suppliers have implemented each of the listed standards into their commercial tools?

Summary: Specific to industry. The number of software suppliers varies. This is an instance where this data can be compiled into a matrix, since many responses overlap.

		Response
Q6	**AIA**	a)X12, EDIFACT, ATA Spec 2000, OAGIS, xCBL, STEP, EIA-836. b)X12 – procurement and finance (widely used by larger companies) – many vendors EDIFACT – procurement and finance (limited use – mostly international) – many vendors ATA Spec 2000 (airline MRO procurement) – airline driven – single central repository OAGIS – supports most ERP functions – gaining broad support – many vendors XCBL – procurement and finance – Exostar partners and some suppliers – single exchange STEP – engineering and manufacturing – adopted by some of the larger companies – many CAD/CAM and PDM vendors have adopted subsets of STEP EIA-836 – configuration management – being evaluated by some companies – only a few vendors
Q6	**AIAG**	Traditional EDI, which uses X12 and EDIFACT, is pervasive in the automotive supply chain from OEMs to Tier 1s. Bar coded labels were defined by AIAG and given to the standards bodies. Hundreds of software supplier businesses have grown around this activity.
Q6	**ASHRAE**	a) ?, b) ?, c) ?
Q6	**CIDX**	a) same as #2 b) not sure what you're looking for here. The Chem eStandards message specifications have been very effective at meeting the chemical industry's business requirements 3) several software suppliers have implemented Chem eStandards out of the box.
Q6	**NSRP**	a) Same as (1) b) IGES ok, dxf ok, STEP good c) Most CAD vendors have adopted the product model exchange standards listed above, although STEP is piecemeal
Q6	**Ford/BIC**	OAGIS (including STAR XML), SOAP, XSD, X12, EDIFACT, AS2, STEP, E5, OFTP, FTP, S/MIME, HTTP, HTTPS, SMTP, ebXML Messaging, CPP/CPA, RegRep, and BPSS. c)Universally implemented in basic IT infrastructure: SOAP, XSD, FTP, HTTP, HTTPS, SMTP. Commonly available in specialized commercial tools: OAGIS, X12, EDIFACT, AS2, OFTP, STEP, S/MIME. Available by special request in some commercial tools, and may not reach critical mass: E5, ebXML Messaging, CPP/CPA, RegRep, and BPSS
Q6	**RAPID**	a) see #2 b) All standards are applicable to all processes. c) message standards: 2 X12 EDI: several with one dominant ebMS: 3, at least W3C XML Schema: everyone GTIN: several

Q6	**RN**	a)Same as (1) b)RosettaNet PIP - good c)More than 10
Q6	**STAR**	STAR is retail distribution, sales and service not supply chain. See item 4 above for description of application areas. Currently the common schema meet all members information needs for each business process the individual schema support. Some vendors have expressed interest, but franchised dealers do not use ERP, CRM, etc vendor products in the dealership
Q6	**UBL**	As it relates to UBL, it is being evaluated by insurance, high technology, HL7, eGovernment worldwide, aerospace and retail. Judging by the interest in and discussion about UBL, it is reasonable to predict that UBL has garnered wide interest in the marketplace. It is being used in a variety of environments, particularly those interested in ebXML. The rating will be borne by the marketplace in implementations. The v.1.0 has not been finalized or released. Therefore, it may be a bit premature to provide any other effectivity rating. UBL team has been quite effective, however, in motivating vertical players to evaluate UBL against their current technology for electronic exchange (payload) and their industry assumptions associated with XML naming and design rules. The latter has been widely recognized within UN/CEFACT for example. On c) Unknown, as the v.1.0 release is not available.

7. Which of the listed standards are provided as machine readable specifications, i.e., can be used as input for automating the development of software implementations?

Summary: This question may have been confusing to some. Majority says their specifications are machine readable; this is for syntax checking but the semantics of the payloads are not machine readable. This question could be further expanded on by including examples of non-machine readable specifications, and having a discussion of how this could be translated into a software implementation if it was defined in a more precise, machine readable manner. We could discuss benefits to be obtained from more precise methods of defining specifications.

		Response
Q7	**AIA**	Either none or all depending what was meant by the question.
Q7	**AIAG**	X12, EDIFACT, and bar coded labels
Q7	**ASHRAE**	Only a set of independent efforts at this point: FIATECH's AEX, aecXML, IAI's BS8
Q7	**CIDX**	Chem eStandards are expressed as DTDs with are clearly machine-readable.
Q7	**NSRP**	All of them.
Q7	**Ford/BIC**	Commercial tools typically are pre-loaded with OAGIS and other XSD schema libraries--in a sense offering some level of software development implementation. There are limits on what can be automated based on an XSD library. For example, each Web Services toolkit automatically develops Java or C# classes from XSD and then automatically builds WSDL. The WSDL that is automatically built in this way is in no case compaible with the original OAGIS XSD. Automatic software development from XSD is emergin technology. OAGIS is the only specification among thise listed above that has a machine readable specification
Q7	**RAPID**	All of them
Q7	**RN**	All of them. RosettaNet is pushing the envelope on automation using automated business process specification (ebXML BPSS), W3C XML Schema, data constraint specification, etc.
Q7	**STAR**	We provide sample XML and schema for all BOD specs developed (as well as data dictionary)

Q7	**UBL**	The UBL schemas are based on XML and XML schema, and the business domain analysis using worksheets automated with scripting tools to create the schemas. However, more sophistication in the future may result in further automation (such as in the area of context methodology and drivers).

8. Does your industry use a Data Dictionary to define common elements?

Summary: Although most of the participants use data dictionaries, we could discuss in what formats the data dictionaries are documented, and if there is possibility and value in adopting some type of standard specification/format for data dictionaries. We will discuss the objectives and formalisms of the data dictionaries and how these have been leveraged.

Response

Q8	**AIA**	Metadata Harmonization (mapping matrix across standards) and UDEF (structured ID for indexing) represent AIA's approach to a common data dictionary.
Q8	**AIAG**	We use the data dictionaries associated with the EDI standards. Working closely with the Core Components efforts at UN/CEFACT.
Q8	**ASHRAE**	GPC20 endeavors to create a data dicitionary to define common elements.
Q8	**CIDX**	Yes
Q8	**NSRP**	Yes by a few shipyards– in development
Q8	**Ford/BIC**	Odette does (European automotive supply chain group). -STEP also has a data dictionary. OAGIS includes a data
Q8	**RAPID**	Yes
Q8	**RN**	Yes – RosettaNet Business and Technical Dictionary
Q8	**STAR**	Yes
Q8	**UBL**	The UBL effort is based on the concepts defined in the ebXML Core Component Technical Specification v.1.90. The

9. **a)** What is the state of your industry's use of registries and repositories for schemas for real-time guaranteed access? **b)** Are there specific barriers or capabilities which must be addressed before your industry will migrate to using registries and repositories for schemas and cross-industry alignment?

Summary: Registries are not implemented across the board. In addition to registries for schemas, there might be a need to have the registry include business processes and which trading partners have adopted the external process. Also note OAG's response about run-time machine processing, which is related to question 7. This indicates that the registry should contain machine-readable specifications.

Response

Q9	**AIA**	a)Looking into applicability/suitability of ebXML Reg/Rep specification and UDDI. Proposing global UDEF registry b)Lack of funding and lack of proven solutions are major barriers.
Q9	**AIAG**	We are not using registries and repositories yet as an industry. We have defined schema for person, location, and company objects for LDAP directories.
Q9	**ASHRAE**	a) We don't believe this has begun yet for an industry as a whole.b) Development of a set of basic dictionary and core types. c) I would think that the specific issue of "guaranteed access" is a critical infrastructure development that must be achieved before registries can be relied upon.

Q9	**CIDX**	a) CIDX has not implemented a registry or repository that is available for real-time access b) The only barrier is a compelling value proposition. Chemical companies don't see much value at this point relative to other initiatives that can be launched.
Q9	**NSRP**	a)Progressing, - planning on registering with DOD Repositories – limited use now, active planning for future use b)Legacy data
Q9	**Ford/BIC**	None. People are asking for it. b) The use of XML has to reach a level at which enough people will find lack of these registries as a problem. Then they will fund the building of such a registry, or a company like Covisint might see a marketplace opportunity. At the scale of implementation we have now, publication of schemas at trading partner facing web sites, or at consortium web sites, is typical practice, and works adequately, especially considering that very few specifications lend themselves to any kind of run-time machine processing or automated software development.
Q9	**RAPID**	a) We don't have real-time access. b) The barriers seem to be inter-industry, or standards, related. There are no specific
Q9	**RN**	a)Future b)Tangible application and value proposition
Q9	**STAR**	Members and non-members have access to repositories containing STAR approved schema, etc.
Q9	**UBL**	Registries that can house core libraries are one of the next steps to enable widespread use and availability for discovery of Core Components, Business Information Entities, controlled libraries related to context, and also common business processes. This would be an effort outside of UBL, but would enable the use of UBL in the marketplace.

10. **a)** What are the important lessons from earlier efforts on developing, synchronizing and deploying eBusiness standards? **b)** How should these lessons be applied to current eBusiness standards initiatives?

Summary: Many responses here point to the business value in implementing ebusiness standards. The supply chain companies that have implemented an ebusiness process have a wealth of information on this topic. Also the responses this question point to Q17.

		Response
Q10	**AIA**	a)Standards must be adopted to realize the benefits. Top management must enforce adoption but the technology solutions must demonstrate ROI taking into consideration a large number of legacy systems that will be here for many years. b)Need to be able to test candidate solutions and have a roadmap that addresses legacy systems before they are promoted as best practices
Q10	**AIAG**	a)You need consistent methodologies, processes, and standards across the enterprise. b)Tough elephant to manage – we're open to suggestions.
Q10	**ASHRAE**	a) Most industries, ours included, tend to be narrowly focussed on our own specific needs. Therefore multiple approachs achieving common goals result in non-interoperable islands of integration. b) A common approach to "horizontal" data elements is essential. Provision for life cycle data modeling that dovetails with "eCommerce" would be a valuable outcome. This would allow various industry initiatives to focus on their domain-specific data, yet would permit interoperability on common transactions.
Q10	**CIDX**	a) cross-industry connectivity requires agreement on both business process and message standards b) drive for cross-industry standardization - the only way solve the problem for industries that do business with many other industries.

Q10	**NSRP**	a) Technology is easy to develop/implement; getting folks to efficiently use it is the key. Resource levels to apply is a big issue b) Self explanitory
Q10	**Ford/BIC**	Build on as much cross-industry commonality as possible -- don't fragment by industry and company. be very clear and disciplined about the semantics of the data field definitions. -b) There must be single convergence points to which the various standards initiatives drive. Right now, we still have 2 convergence points at the technical protocol level: (1) ebXML Messaging, CPP/CPA, RegRep, and BPSS and (2) Web Services WS-ReliableMessaging, WS-Security, UDDI, WSDL, BPEL4WS. We need to move rapidly away from ebXML toward Web Services in the technology space. The broadly accepted convergence point at the business content level is UN/CEFACT (ebXML) Core Components. Two intermediate convergence points are OAGIS and the OASIS UBL TC. What to do with entrenched DTD libraries like RosettaNet and CIDX is not obvious.
Q10	**RAPID**	a) Standards must be tested in a real environment. Industry readiness to accept. Back-end integration issues. Firewall issues. SSL certificates. Messaging application version control. More--we can provide separate document. b) Consider these issues before launching a project or pilot.
Q10	**RN**	a)Technology is easy to develop/implement; building the right solution that gives ROI is key, so are commitment from solution providers and implementers b)Self explanatory
Q10	**STAR**	[No response at this time]
Q10	**UBL**	Lessons Learned include: (1) Understanding the importance of content, and design rules development, and their mutual interdependencies, (2) Establishing early on, at least at a high level, most of the business requirements related to design, execution and display of UBL artifacts – core component types, reusable components, schemas, etc. There was quite a bit of discussion about UBL-compliant schemas and how that related to their display to meet business requirements, and (3) Continue to work complex issues as the business requirements and technical constraints are understood over time (prime example, use of global vs. local elements).

Part 2. Industry Requirements and Barriers

11. **a)** Is this model of the eBusiness capabilities "stack" useful and sufficient for providing a generic framework for describing what is needed for B2B information exchange? **b)** How would you improve this model or extend it for Web Services? **c)** Do you have an alternative model to recommend?

Summary: There is general support for the generic model, although every organization has their own idea of the stack, e.g., support for real-time sharing/collaboration. This will be a topic of the workshop discussions.

		Response
Q11	**AIA**	a)The generic model lacks recognition of the need for real-time sharing and markup of non-transaction data such as engineering drawings and project plans. b)Add a "mapping/indexing across standards" layer within the top (vertical industry) section. This is necessary since no industry is an island c)
Q11	**AIAG**	a)Appears to – won't know until you test it.
Q11	**ASHRAE**	a) A common reference model is useful for creating an agreed upon taxonomy for the description of eBusiness. Similar to the OSI 7 layer model for communications, it is not essential that the taxonomy dictate design; only that it facilitate exchange of descriptions. b) Add definitions to picture. c) No.

Q11	**CIDX**	a) it looks pretty thorough although it has some layers in the stack that aren't very clear to us. b) Web Services is too unclear to us to be able to fit it into a model like this c) CIDX has collaborated with RAPID and PIDX on a model that is
Q11	**NSRP**	a)Seems Ok with me b)Cannot think of any now
Q11	**Ford/BIC**	a) I'm not sure what "Presentation Description" means, but otherwise it's good. Not much different from the BIC framework. Q0S and Conformance are good adds, and I didn't agree with including Service Oriented Architecture and Backend Integration in the BIC stack. b) I suspect that Web Services covers more ground than this does. A valuable exercise would be to go through each of the Web Services Architecture Usage Scenarios (http://www.w3.org/TR/2003/WD-ws-arch-scenarios-20030514/) and check whether anything is needed that isn't on this diagram, or whether a different sort of diagram is needed. c) I contributed everything I know about to this one.
Q11	**RAPID**	a) Probably. We'd need to walk through it with the author. b) Web services is a broad term and as such is difficult to answer here. c) RAPID, CIDX, and PIDX share a model that is in many ways similar.
Q11	**RN**	a)The vertical industry area is vague and sparse, the other layers are quite OK. Trading Partner Agreement (TPA) is missing from the BIC model? b)Why Web Services? c)
Q11	**STAR**	Useful, but need to address the Transport and Network layers in greater detail We are evaluating Web Services currently No alternative model at this time
Q11	**UBL**	In the context of UBL and in support of ebXML, there are actually some further definitions within the area of specialized and generalized content and processes (Differentiate semantically neutral information objects, objects understood in context, for example) In addition, a process description language may also equate to a process specification that models processes but also provides the capability for use in a runtime engine (Not just declarative but computable – re: BPSS). On b), given the work of DAML-S, perhaps acknowledge the role of ontologies in the future of eBusiness standards and also web services. Currently, the UBL TC has established an ontologies effort.

12. What are your industry's top priorities (list top 5) for eBusiness standards and supporting infrastructure during the next two years?

Summary: Implementation being the most important.

		Response
Q12	**AIA**	Interoperability, security, and collaboration
Q12	**AIAG**	Inventory Visibility & Interoperability, Quality, Warranty, Engineering, End of Life Vehicle and TREAD reporting.
Q12	**ASHRAE**	1) Determining the mating between domain specific content and horizontal content 2) Design collaboration, Procurement and Operational models of HVAC industry specific items 3) A "guaranteed" repository for Schemas 4) A coalescence of the competing efforts -- ebXML/UBL, OAGIS, WS 5) Model for interoperable reuse of schemas from different domains
Q12	**CIDX**	1) Greater implementation in the chemical industry 2) Chemical industry standard business processes 3) Accepted standard for transport, routing and packaging across industry 4) Accepted approach for expressing business processes across industry 5) Accepted cross-industry message standards
Q12	**NSRP**	Discipline-specific STEP exchanges, xml implementations, UBL
Q12	**Ford/BIC**	Meeting regulatory and security requirements. Registry. Trust and security infrastructure.

Q12	**RAPID**	1. Implementation 2. Reduce costs 3. Cross-segment collaboration 4. Fine-tuning RAPID/CIDX/PIDX collaborative processes. 5. Industry education and training on standards, their value, and their implementation.
Q12	**RN**	RosettaNet PIPs for multiparty exchanges, TP specific data constraint processing, automated TP physical provisioning
Q12	**STAR**	1. Continue developing/enhancing standards 2. Develop implementation guidelines 3. Coordinate schema development with other standards orgs 4. Share testing and implementation project information among members
Q12	**UBL**	In general (and related to UBL): Legacy enablement and migration, semantic interoperability, ease of use and cost effectiveness of emerging, open standards, and small and medium business availability.

13. What are the limitations or constraints of the current eBusiness standards and of available implementations of these standards?
Summary: Full implementation is low so this is a major constraint.

		Response
Q13	**AIA**	Current XML based standards are mostly transaction oriented and are ignoring real-time collaboration requirements within the engineering and manufacturing intensive industries.
Q13	**AIAG**	Traditional EDI standards do not reach the small to mid-size suppliers – too complex and costly for this group
Q13	**ASHRAE**	Too many of them. Reluctance of supply chain participants, e.g. product and IT suppliers, to collaborate and implement common solutions.
Q13	**CIDX**	1) Business process specifications are too difficult to use. 2) Business people typically don't see the value propositions of eBusiness on a large scale 3) Not enough companies are capable of doing XML-based eBusiness 4) Lack of cross-industry message standards or an easy approach to map between industry vertical standards
Q13	**NSRP**	IGES/dxf dated and handle limited product model data, CAD vendor support of STEP is weak; Resources for industry to work on issue
Q13	**Ford/BIC**	There are too many types of them, they're too expensive, and they're always add-ons, because the core applications that do the work are not designed with integration in mind, much less integration among applications owned by the various stakeholders in a complex trading community like automotive. We need a core base of eBusiness standards, both technical and business semantic, that are built deeply into the IT infrastructure. Where we need to get to is if you own a computer, it can do eBusiness. It's that fundamental to future economic growth.
Q13	**RAPID**	1. Business readiness 2. Prioritization 3. Lack of value recognition
Q13	**RN**	Based on a document exchange model, and thus less automatable. Cost of implementation is high.
Q13	**STAR**	Level of full implementation by a company is relatively low.
Q13	**UBL**	Limitations and constraints include: Onslaught of new technologies with large scale from mega-vendors complicate business understanding and the use of current eBusiness standards to meet business requirements.

14. What are the key barriers (list top 5) to broader adoption of eBusiness capabilities and standards across the supply chains of your industry?
Summary: Lack of interoperability.

Response

Q14	**AIA**	Lack of common data dictionary that supports all industries or acknowledgement that mapping matrices are necessary with a common indexing scheme, lack of non-transactional e-collaboration standards, lack of proven solutions that are interoperable across a wide spectrum of vendors, lack of accepted security solutions using the Internet, lack of funding to test new solutions – particularly in a lean economy.
Q14	**AIAG**	Lack of interoperability, lack of understanding as to install and use, lack of low cost solutions, cut-backs of IT budgets, lack of skilled practitioners in our companies.
Q14	**ASHRAE**	1) Standardization of a single method would make adoption easier 2) Independence from domain specific models of interaction -- the life cycle management of building HVAC often overlaps with lighting, fire and security, and IT procurements and management, and, utilities, for example.
Q14	**CIDX**	same as 13
Q14	**NSRP**	Resources, CAD vendor support of STEP is weak, perception that STEP is not for everyone
Q14	**Ford/BIC**	Cost Fragmented entrenched local standards
Q14	**RAPID**	Same as #13 + manufacturers don't appear to looking to leverage eBusiness standards with their suppliers (upstream).
Q14	**RN**	Cost, and lack of awareness of standards, OEM sponsorship (lack of)
Q14	**STAR**	1. Demonstrate interoperability among members and their IT vendors 2. Increased experience among a greater number of members 3. Integration with legacy O/S and applications 4. Demonstrate low cost solution is reliable, scalabilty
Q14	**UBL**	Barriers include: Resources, skills, time and budget constraints, and finally lack of sufficient understanding of how

15. **a)** What are your industry's priority work processes (list top 5) for automating with eBusiness standards during the next two years? **b)** What must be accomplished for this to occur?

Summary: Refine the supply chain. Interoperability with other organizations.

		Response
Q15	**AIA**	Need common e-business processes that are in UML format, need a readily available and indexed registry/repository for discovery of suitable e-business processes and associated data, need vendors (especially ERP and PDM) to adopt the e-business standard processes and data, need a mechanism to lower the costs of building interfaces to a large number of legacy systems.
Q15	**AIAG**	a)(See previous answer.) b)Available resources – subject matter experts and funds – committed to cooperatively work together.
Q15	**ASHRAE**	1) Develop key use cases for elaboration of requirements and assessment of available specifications. 2) Definition of partition between horizontal and vertical data components / exchanges
Q15	**CIDX**	a) Order-to-Cash, Logistics, CPFR b) refinement of business processes and company investment in capability
Q15	**NSRP**	Supply chain, CAD to CAM, CAE to CAD, production work flow analysis
Q15	**Ford/BIC**	Working together with other organizations
Q15	**RAPID**	a) continue refinement of: 1. Order Process 2. Inventory Reporting 3. Sales Reporting 4. Invoicing 5. Ship Notices Automated product identification is key to support these.
Q15	**RN**	Manufacturing Supply chain
Q15	**STAR**	1. Demonstrate interoperability among members 2. Identify cost-effective solutions used in item 1 above

Q15	**UBL**	Focus on semantic interoperability through use of the core component concepts on which UBL are based.

16. What are essential technology options for lowering the costs of development and deployment of eBusiness standards? **Option 1.** Libraries of common vocabularies and business process models (i.e., accessible and used by multiple industries) to lower overall data and/or semantic transformation processes**Option 2.** Use case and schema capabilities registry**Option 3.** Automated mechanisms to discover and utilize freely accessible vocabularies, processes, components and schemas**Option 4.** Automated trading partner capability searching and matching**Option 5.** Automated schema validation tools**Option 6.** Automated implementation compliance assessment**Option 7.** List other recommendations. *Prioritize your recommendations.*

Summary: Majority of the participants listed Option 1 as their number one recommendation. Options 2 and 3 are also at the top of the list.

			Response
Q16	**AIA**	**7,3,1**	Option 7. List other recommendations…adoption of a structured ID (i.e., UDEF) across multiple standards or application APIs with support of a Web Service that provides a readily available “compare” function. Prioritize your recommendations. 1. Option 7 – provides global indexing scheme within repositories 2. Option 3 – uses the global indexing scheme for discovery 3. Option 1 – provides the necessary content that is indexed
Q16	**AIAG**	**1,2,3,4**	Option 1. Libraries of common vocabularies and business process models (i.e., accessible and used by multiple industries) to lower overall data and/or semantic transformation processes - yes Option 2. Use case and schema capabilities registry - yes Option 3. Automated mechanisms to discover and utilize freely accessible vocabularies, processes, components and schemas - yes Option 4. Automated trading partner capability searching and matching – we already have it – not as essential Option 5. Automated schema validation tools - yes Option 6. Automated implementation compliance assessment - good to have
Q16	**ASHRAE**	**1,6,2/5, 7**	1. This availability would allow businesses to avoid independently developed representations of the same information that requires a set of software to translate between. A huge obstacle to interoperability and robustness will have been removed. 6. This would permit easy self certification. 2./5. Availability of validating tools and repositories are essential to configuration management to facilitate interoperability between independent entities.7. A useful effort would be to agree on "key points of interoperability" so that the independent efforts are not required to agree on everything before they can usefully agree on anything.
Q16	**CIDX**	**1**	Libraries of business process/use cases common TRP standard Libraries of XML Schema Library of common codes
Q16	**NSRP**		1, 5, 2, 3, 4
Q16	**Ford/BIC**	**6**	Option 6. Automated implementation compliance assessment That's the only one of the I think is really useful at this time. WS-I needs it. They should get it from NIST.
Q16	**RAPID**		1. B2B collaboration standards (business processes; use cases) 2. Widely supported TRP 3. Widely supported message standards (XML Schemas) 4. Directories of industry-common codes (e.g. end-users, companies, products, enumerations in schemas)
Q16	**RN**	**1367**	1, 3, 6, 7 (quick provisioning of TPs)
Q16	**STAR**	**12563**	In this order – Options 1, 2, 5, 6, 3, and 4

Q16	**UBL**	**13245**	Overall, take the 80/20 rule on assisting business to meet the majority of its requirements, within their business constraints. Rating 1 - Option 1. Libraries of common vocabularies and business process models (i.e., accessible and used by multiple industries) to lower overall data and/or semantic transformation processes Rating 2 Option 3. Automated mechanisms to discover and utilize freely Rating 3 Option 2. Use case and schema capabilities registry accessible vocabularies, processes, components and schemas Rating 4 Option 4. Automated trading partner capability searching and matching Rating 5 Option 5. Automated schema validation tools Rating 6 Option 6. Automated implementation compliance assessment - Note: In the future, when such technologies mature Rating 7 Option 7. List other recommendations… Suggestion: Educate business stakeholders in order to promote effective and realistic decision-making. Note: Prioritization as it relates to UBL.

17. Would the availability of "a generic model of the internal processes, external processes and ROI for adopting and deploying B2B capabilities" facilitate industry take-up and success?

Summary: Most responses suggest that it could be useful.

		Response
Q17	**AIA**	Only if the generic could be easily tailored to the needs of the aerospace industry
Q17	**AIAG**	Could be useful
Q17	**ASHRAE**	Yes.
Q17	**CIDX**	yes
Q17	**NSRP**	Maybe - Barely
Q17	**Ford/BIC**	Not as much as standards convergence and corresponding low cost and ubiquity of the technology that would result.
Q17	**RAPID**	yes
Q17	**RN**	Barely
Q17	**STAR**	Maybe
Q17	**UBL**	In general (not specific to UBL): If this is related to a generic simple guide to understand the steps and evaluation that may occur to support analysis of, adoption and deployment of B2B technologies – yes. The view / definition of internal or external processes are quite gray in today's marketplace particularly including web services. Therefore, this distinction is not easily made or communicated to business people. Internal processes to one organization or entity may be external to another, and may be based on roles as well as the agreements that may define those roles and interactions.

18. **a)** Is the lack of comprehensive testing and certification of software implementations of the eBusiness standards a barrier to your industry's adoption of eBusiness capabilities? **b)** If yes, please explain.

Summary: This question was not clearly stated. There is confusion about the distinctions between: a) validation testing to ensure that a draft specification supports the required functionality; b) implementation testing to ensure that software is a correct and consistent implementation of the specification, c) conformance testing, d) interoperability testing and software certification services. The responses indicated no strong interest in certification.

		Response
Q18	**AIA**	a)Perhaps in the future b)It could very well provide a natural conduit to industry acceptance and implementation / usage via the publicizing of the testing / certification process.

Q18	**AIAG**	Not a barrier but can be certainly disappoint when you install software that does not live up to it's stated capability
Q18	**ASHRAE**	Yes. Any deployment of technology and business process is expensive. Managements will need to be assured that standardization and deployment will achieve minimizing costs. In the absence of this sense of guarantee, organizations will be prone to partial solutions and implementations with limited groups of collaboration partners. This will cause islands of interoperability that will take decades to overcome.
Q18	**CIDX**	a) not now but it may be later on.
Q18	**NSRP**	No, resources is more of a barrier
Q18	**Ford/BIC**	Yes. Otherwise, everyone has to do interoperability testing themselves, which will drive up the costs.
Q18	**RAPID**	a) Not yet, but is likely in the future.
Q18	**RN**	No, resources is more of a barrier
Q18	**STAR**	Somewhat. Slows implementation process, but is not a barrier
Q18	**UBL**	The need for and effective use of testing for eBusiness conformance and interoperability are evidence of the growth and maturity of emergent standards, such as ebXML. However, this is only one component in enabling adoption and deployment. For true global interoperability, the test center or authority itself must go through the rigor to test themselves against a test framework and stringent criteria in order to have confidence in the results of testing other components under test. This is a lengthy discussion. Without more information, it is difficult to expand any further. Comprehensive testing and the certification component raise the bar on responsibility on the test authority or officiating organization that could hold legal ramifications. This has only been briefly discussed within OASIS.

19. Is the lack of ROI studies on actual implementations a barrier for your industry's adoption?

Summary: 4 answered yes. 2 felt it's only a small aspect contributing to the barrier. 3 said no or it's a past concern.

		Response
Q19	**AIA**	Yes – would need case studies from engineering and manufacturing intensive industries – particularly those that have both types of basic process flows –-- design, build and sell (commercial customer) as well as --- sell, design, and build (government customer).
Q19	**AIAG**	Definitely yes
Q19	**ASHRAE**	Don't really know. But selling management would be facilitated by clear economic benefits.
Q19	**CIDX**	Yes. Clear chemical company implementation would be enhanced by a solid value proposition
Q19	**NSRP**	ROI studies are only a small issue
Q19	**Ford/BIC**	It was last year. Now there have been enough massive successful integration projects and case studies that I'm seeing people make good business cases and start projects. It's happening around Web Services.
Q19	**RAPID**	Probably. ROI studies are always beneficial. RAPID has done an ROI study with the agricultural-inputs industry.
Q19	**RN**	No
Q19	**STAR**	No

Q19	**UBL**	Cutting costs and saving time are on everyone's mind; however, true and verifiable studies are difficult to acquire because this requires exposing business vulnerabilities to the marketplace. The real value of any case study is providing evidence of adoption and deployment efforts against specific business requirements and the achievement of those objectives. Although the return-on-investment is important, the processes used, the outcomes, and the benefits are even more on the minds of business people. In the case of UBL, several vertical industries are looking at standardization of semantic elements, to enable their electronic exchange (payload), and find this effort to be very important in understanding their business processes and enabling interoperability across multiple industries or partners.

20. **a)** What issues has your industry identified with implementations of available eBusiness standards? **b)** Do you think these are factors affecting the adoption and deployment of eBusiness capabilities?

Summary: Too many standards and the lack of commonization in the use of standards.

		Response
Q20	**AIA**	a)Too many standards covering too many silo activities that affect aerospace (e.g., HR, Logistics, Banking, Insurance, Government Reporting such as IRS and SEC, etc.) Industry culture throughout supply chain is slow to realize the need and ROI for normalizing EB standards use at the industry level. There is still much disparity of standards implementations across member companies. b)Yes, many of the standards overlap and some are driven by very powerful organizations such as banks and the major accounting firms. Industry-level culture change management is needed to achieve appreciation for e-business standardization.
Q20	**AIAG**	a)Lack of commonization in the use of standards, which raises the cost and confusion across the entire industry. Sometimes software products are not ready to deploy. Sometimes proprietary solutions have critical mass b)Probably
Q20	**ASHRAE**	?
Q20	**CIDX**	a) already answered this question b) standards aren't yet stable and widely understood. Until/unless it gets easier, none but early-adopters will take much risk.
Q20	**NSRP**	a)See (4) above b)Those in (4) response are
Q20	**Ford/BIC**	(I'll have to finish this later...) - (that's all the time I have...)
Q20	**RAPID**	a) see answers to previous questions b) Is this a trick question? (Just checking to see if anyone is reading these answers.)
Q20	**RN**	a)See (4) above b)Those in (4) response are
Q20	**STAR**	1. Validation of schema content 2. Demonstration of interoperability Yes to varying degrees
Q20	**UBL**	See question on 'What are the key barriers (list top 5) to broader adoption of eBusiness capabilities and standards across the supply chains of your industry?'

Part 3. Recommendations for eBusiness Standards Reuse, Convergence and Deployment

21. What are your insights, concerns and recommendations for the registration, ownership and governance for needed eBusinsess standards? For example, some recommend that "royalty free copyrighting" is essential for broad adoption and industry convergence. Others consider "royalty free copyrighting" to not be a sustainable mechanism for ensuring long term, reliable access to schemas and business standards.

Summary: Open and royalty free seems to be the common feedback.

		Response
Q21	**AIA**	We need to acknowledge that there is no single standard that covers all industries and all functions for both transactions and non-transactions. Since multiple standards are a fact of life, there needs to be maps between the standards. The maps need to be maintained in a central registry with an indexing mechanism (UDEF structured ID) to each element within the data dictionary of each standard.
Q21	**AIAG**	Standards that are intended to be used across an entire industry should be made freely available at no cost to ensure deployment. There needs to be a separate way to recognize IPcontributors.
Q21	**ASHRAE**	I think the metaphor that might relate is that no one should seek to own a dictionary. It is the "great literary work" that merits protection. We recommend that "key points of interoperability" are defined and are freely available. Customizations and implementations based on a core common base of interoperability can be proprietary, encouraging development of useful solutions
Q21	**CIDX**	Open process, freely available standards, recognized global de jure standards body
Q21	**NSRP**	Most of these are being addressed with DON XML working group
Q21	**Ford/BIC**	(I'll have to finish this later...) - (that's all the time I have...)
Q21	**RAPID**	We believe the following characteristics are important: - Open - Perpetually royalty-free - Cross-industry - Endorsed or owned by a de jure standards body (not required) - Owner follows a rigorous, transparent, and open development process
Q21	**RN**	Royalty free copyrighting is important. Providing access to schemas would not be enough. Standards should cover more of the implementation space, thus reducing “variations” that cost too much resources
Q21	**STAR**	1. Education - as in sharing knowledge not basic learning process 2. Sharing lessons learned and descriptions of tests conducted
Q21	**UBL**	This is a debate that has to do with branding, ownership, patents, and capability to protect intellectual mind share. However, the promotion of open and freely available standards can serve as a basis for the future to promote interoperability. Otherwise, the flip side is that standards with terms will effectively disable small market players who can not leverage licensing agreements to compete and open source efforts could be significantly impacted.

22. **a)** Is your industry monitoring or participating in any of the efforts to develop “core components”, e.g., ebXML core components? **b)** If yes, what are your concerns and recommendations for making that process effective and timely in delivering needed solutions?

Summary: It appears that each organization is actively monitoring. There is a need for effective metrics, methods and procedures for converging existing data element sets to common data elements, e.g., "core components".

		Response
Q22	**AIA**	a)Yes – ebXML Core Components b)Need to adopt the UDEF approach and assign a structured UID rather than ebXML’s unstructured “temporary UID”
Q22	**AIAG**	a)YES b)Too many competing initiatives within the standards bodies themselves

Q22	**ASHRAE**	a) Yes b) We could benefit from a clear concensus on the split between domain specific content and shared core components. This would permit the industry to concentrate on its own specific details. c) Current efforts appear to add complexity that impedes adoption.
Q22	**CIDX**	a) CIDX monitoring these efforts with keen interest but is not participating at the moment. b) Our interest will increase tremendously when it's clear that such efforts are being widely accepted and used.
Q22	**NSRP**	a) Yes-NSRP Projects: ISE & SPARS b) Consortiums and industry working groups like NSRP projects and the DON XML Working group is generally the only way to get industry concurrence
Q22	**Ford/BIC**	(that's all the time I have...)
Q22	**RAPID**	a) RAPID is monitoring very closely and considering the implications for Ag eStandards. b) RAPID is looking for real implementations of core component registries as well as a responsive and robust harmonization process.
Q22	**RN**	a) No- has own. RosettaNet Universal Structures, Domain Structures, etc. Aligns with UBL. b)Making sure business experts define requirements for business solutions, and not technical experts.
Q22	**STAR**	1. Yes, monitoring 2. Need real world focus rather than an academic approach
Q22	**UBL**	Yes, and UBL has submitted its intent to serve as a implementation verification candidate for CCTS Step 6. On b), facilitate more collaboration between ebXML Registry/Repository , Core Components, and Core Component implementor teams.

23. What specific actions should be taken by industry or NIST to accelerate and improve: **a.** Reuse and convergence of eBusiness vocabularies, components and specifications **b.** Delivery of needed eBusiness standards and supporting infrastructure **c.** Use and reliability of registries and repositories for schemas for real-time guaranteed access **d.** Delivery of effective and reliable implementations **e.** Profitable deployment and adoption in industry **f.** Interoperability of cross-industry eBusiness standards

Summary: Most responses agree with our suggestions put forth here. Providing a test bed seem to be a common answer.

		Response
Q23	**AIA**	a. Reuse and convergence of eBusiness vocabularies, components and specifications – Adopt and promote the UDEF b. Delivery of needed eBusiness standards and supporting infrastructure – fund a test bed to demonstrate interoperability, security, and collaboration c. Use and reliability of registries and repositories for schemas for real-time guaranteed access – adopt and promote the UDEF structured IDs across repositories – a Dewey Decimal-like indexing scheme. d. Delivery of effective and reliable implementations – certification testing by a neutral non-profit e. Profitable deployment and adoption in industry - adoption by the vendors with government adding their buying power as incentive f. Interoperability of cross-industry eBusiness standards – build maps across standards and use the UDEF indexing scheme
Q23	**AIAG**	All the above could be improved if the NIST had a robust testing/validation environment to support “the stack” and it was easily accessible to various communities to use, and the value of this capability was widely recognized.

Q23	**ASHRAE**	1) Continue to provide a forum for convergence of independent efforts 2) Identify and implement any key infrastructure such as root repositories, a la library of congress, to facilitate the "guarantee" part of repositories. 3) Development of reference imlementations that can be the basis of self conformance. 4) I like the idea of studies that demonstrate the value of interoperability
Q23	**CIDX**	Not sure what NIST can do other than act as a neutral forum for discussion. Industries need to get off the fence and support cross-industry initiatives or there won't be any.
Q23	**NSRP**	Answered in prior responses
Q23	**Ford/BIC**	Provide testbed for WS-I.org
Q23	**RAPID**	RAPID isn't clear on what sorts of activities are in scope and out of scope for NIST. a) Forums like the upcoming NIST forum is an excellent start. b) ? c) Identify and certify some. d) ? e) ? f) Testing approaches.
Q23	**RN**	Answered in prior responses + Counter market hype on web services resulting in unreasonable expectations
Q23	**STAR**	All of the suggetions
Q23	**UBL**	a. Yes b. Continue testing efforts. c. Continue effort started with ebXML Registry/Repository and the definition and validation in the future of testing mechanisms to support these efforts. d. Coordinate with the marketplace to enable implementation through test centers, where NIST expertise lies. e. This will be an outcome if some of these recommendations are realized. f. This can be achieved through a, b, and c at a minimum. Other opportunities may apply for NIST to enable the marketplace in an open and freely available manner.

24. What are your recommendations on specific testbed capabilities that are critical for the development and deployment of eBusiness standards for your industry?

Summary: Responses vary.

		Response
Q24	**AIA**	Support AIA and EIDX as they pursue a full-scale pilot to demonstrate a global UDEF Registry.
Q24	**AIAG**	Security, directory services, registry/repository, and business services
Q24	**ASHRAE**	Don't know enough about existing test bed.
Q24	**CIDX**	This will be very important for accepted cross-industry standards. We need to focus on that first.
Q24	**NSRP**	>> need to get NSRP project to test in shipbuilding environment.
Q24	**Ford/BIC**	Provide testbed for WS-I.org
Q24	**RAPID**	Comprehensive documentation on testbed use.
Q24	**RN**	>> free testbed capabilities for low cost solutions
Q24	**STAR**	Nothing specific at this time
Q24	**UBL**	Use ebXML test framework model as a start.